

**AMENDMENTS TO THE CLAIMS**

1. (currently amended) A laser diode driver output stage for driving an associated laser diode device, the laser diode driver output stage comprising:

a driver circuit having at least one input node and an output node, the driver circuit adapted to receive an input data signal at the at least one input node and provide an output signal at the output node in response to the data signal; and

a transformer coupled to the output node of the driver circuit, the transformer adapted to receive the output signal at a first side of the transformer and apply impedance compensation to the output signal to provide an output drive signal from a second side of the transformer, whereby the output drive signal is used to drive the associated laser diode device, the first side of the transformer further comprises a primary side and the second side of the transformer further comprises a secondary side, a negative terminal of the primary side of the transformer is adapted to receive the output signal from the drive circuit, a negative terminal of the secondary side of the transformer is adapted to provide the output drive signal, said primary side of the transformer is adapted to compensate for a parasitic capacitance associated with the driver circuit at a first frequency of operation;

a primary side resistor coupled in parallel with the primary side of the transformer, the primary side resistor is adapted to repress an output impedance associated with the primary side of the transformer at a second frequency of operation higher than the first frequency of operation; and

a termination resistor connected to a positive terminal of the primary side of the transformer, wherein the output impedance of the laser diode driver output stage is substantially

equal to a the impedance of the termination resistor at a third frequency of operation lower than the first frequency of operation.

2. - 6. (canceled)

7. (currently amended) The laser diode driver output stage of claim 1 ~~claim 5~~, further comprising:

a secondary side resistor coupled in parallel with the secondary side of the transformer, the secondary side resistor and the secondary side of the transformer adapted to compensate for the impedance of the termination resistor at the third frequency of operation.

8. (original) The laser diode driver output stage of claim 1, wherein the driver circuit further comprises an output switch architecture.

9. (original) The laser diode driver output stage of claim 1, wherein the driver circuit comprises a differential amplifier.

10. (original) The laser diode driver output stage of claim 1, wherein the driver circuit comprises:

a first switch transistor adapted to receive a first differential input data signal of the input data signal at a first gate node; and

a second switch transistor adapted to receive a second differential input data signal of the input data signal at a second gate node,

wherein a first emitter node of the first switch transistor is connected to a second emitter node of the second switch transistor, and a first collector node of the second switch transistor is adapted to provide the output signal to the first side of the transformer.

11. (original) The laser diode driver output stage of claim 10, wherein the first switch transistor comprises a first bipolar junction transistor, and the second switch transistor comprises a second bipolar junction transistor.

12. (original) The laser diode driver output stage of claim 10, further comprising a current generator coupled to the first emitter node and the second emitter node.

13. (original) The laser diode driver circuit output stage of claim 10, wherein a negative terminal of the first side of the transformer is adapted to receive the output signal from the first collector node of the second switch transistor, and a negative terminal of the second side of the transformer is adapted to provide the output drive signal.

14. (original) The laser diode driver output stage of claim 13, wherein the first side of the transformer is adapted to compensate for a parasitic capacitance associated with the first collector node of the second switch transistor at a first frequency of operation.

15. (original) The laser diode driver output stage of claim 1, further comprising a pre-driver circuit adapted to provide the input data signal to the driver circuit.

16. (currently amended) A method for providing an improved drive signal from a laser diode driver output stage to a laser diode device, the method comprising the steps of:

receiving an input data signal at a driver circuit;

providing an output signal from the driver circuit in response to the data signal;

receiving the output signal at an input to a first side of a transformer; and

applying impedance compensation to the output signal to provide an output drive signal from an output of a second side of the transformer, whereby the output drive signal is

used to drive the laser diode device; wherein the first side of the transformer comprises a primary side and the second side of the transformer comprises a secondary side, the step of applying impedance compensation further comprises compensating for a parasitic capacitance associated with the driver circuit at a first frequency of operation using the primary side of the transformer and comprises repressing an output impedance associated with the primary side of the transformer at a second frequency of operation higher than the first frequency of operation using a primary side resistor connected in parallel with the primary side of the transformer, and wherein the output impedance of the laser diode driver output stage at a third frequency of operation lower than the first frequency of operation is substantially equal to the impedance of a termination resistor coupled to a positive terminal of the primary side of the transformer.

17. - 20. (canceled)

21. (original) The method of claim 20, wherein the step of applying impedance compensation to the output signal further comprises the step of compensating for the impedance of the termination resistor at the third frequency of operation using a secondary side resistor coupled in parallel with the secondary side of the transformer, and a secondary side of the transformer.

22. (original) The method of claim 16, further comprising the step of providing the output drive signal to the laser diode device using a transmission line.